Umpqua Fisheries Concerns- Why not Blame it on the Bass?

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Abstract- *The Umpqua basin encompasses over 3 million acres and has over 4000 miles of streams. It has a great diversity of native fish species that have provided year-round inland recreational fisheries for Southwest Oregon for several decades. The Umpqua basin has also had its share of exotic species introduced into the system, both legally and illegally. Brook trout, brown trout, shad, striped bass, tui chub, bluegill, brown bullhead, green sunfish, golden shiner, and more. However, the most talked about and perhaps most controversial exotic species in the Umpqua is the smallmouth bass. This species has had an impact on the fish populations and fisheries in the Umpqua. Since the illegal introduction of the smallmouth bass in the 1960's, the population has established itself in the South Umpqua, mainstem Umpqua, Cow Creek, and other tributaries. A popular fishery in these areas brings several thousand anglers to the Umpqua each summer. Based on diet studies conducted in recent years, bass prey on a variety of animals, including fishes. Salmonids are a very small proportion of their overall diet throughout the year. Non-salmonid species appear to be more vulnerable and available to the bass during their peak feeding period. Available data for salmon and steelhead populations in the Umpqua basin do not indicate a direct correlation related to smallmouth bass presence in the basin since 1960's. Recent regulation changes allow a higher harvest of bass in the Umpqua, but overall affects to the current populations of fishes in the Umpqua appear to be insignificant.*

The Umpqua basin encompasses over three million acres and has over 4000 miles of streams. It has a great diversity of native fish species that have provided inland recreational fisheries for Southwest Oregon for several decades. The Umpqua chinook and coho stocks have also been important contributors to ocean commercial and sport fisheries off Oregon. The Umpqua basin has spring and fall chinook, summer and winter steelhead, coho, cutthroat trout, rainbow trout, as well as unique native species like the Umpqua pike minnow, Umpqua dace, and common species including lamprey, suckers, sculpins, and other non-salmonid fisheries.

The Umpqua has also had its share of exotic species introduced in the basin over the past several years. Brook trout, brown trout, shad, brown bullhead, green sunfish, striped bass, golden shiner, bluegill and more. However, the most talked about and perhaps most controversial exotic fish species in the Umpqua is the smallmouth bass. This species has made an impact on the Umpqua basin fisheries. We know there is a new and popular fishery! The major question(s) are how significant are the biological impacts to the native species and what, if anything, can we or do we want to do regarding this new species in the basin.

Smallmouth bass were stocked illegally in the South Umpqua basin in ponds and possibly directly into the river in the early 1960's. The Christmas storm of 1964 not only flooded the basin with the highest water seen in recent history; it instantaneously stocked several miles of the basin with a very predacious warmwater species. The smallmouth bass quickly took advantage of sections of the rivers that native coldwater species did not inhabit year-round. In 1977, smallmouth bass were "officially" documented as being established in good numbers and naturally colonized other sections of the South Umpqua basin and mainstem Umpqua. Shortly thereafter, a popular recreational fishery developed and by the 1980's there were several hundred anglers fishing for bass in the river. These aggressive fish provided a summertime angling opportunity in places where Huck Finn and other exploring kids like myself had only caught suckers and pikeminnows in the past.

Today, we have more anglers and commercial guides fishing for smallmouth bass from June through September in the mainstem Umpqua than there are fly fishers and bait anglers casting for the infamous North Umpqua summer steelhead. New boat ramps, recreational areas, and more "no trespassing "signs on private lands along the rivers signify the bass fishery is here to stay and will continue to draw anglers from all over the country to Douglas County. And contrary to accusations by some local guides, ODFW is not going to now take credit for the introduction of smallmouth bass and the development of a popular and economically important fishery.

There should be no questioning by anyone that during the past 30 years the Umpqua basin has seen many other changes besides the introduction of smallmouth bass. These issues are well known by fishery managers and the public, and continue to be widely discussed and sometimes heatedly debated in many circles as to "Who or What to Blame". So, "What about those smallmouth bass?" Have the bass actually caused the salmonid species in the Umpqua basin to decline or perhaps only made bad conditions worse? Are there other species that have declined because of the bass? Can we do anything about reducing the risk of further impacts to the native species, especially the ones that co-exist now with the bass? I will provide some examples of specific fish populations' status in the Umpqua basin to allow each of you to consider the impacts of the bass. First, I will share some information from a smallmouth bass diet study that the Umpqua District began in 1992.

Based on sampling the stomach contents from several hundred smallmouth bass caught in the mainstem Umpqua River from 1992 to 1998, bass eat other fish……And a whole lot of other animals. Crayfish and insects are the most common prey of the smallmouth bass (Figure 1). Fish are a common prey, but most species that were identified from the stomachs of bass were non-salmonids. Small-sized sculpins, suckers, chub, shad, pikeminnows, lamprey, and smallmouth bass were more frequently found in large (>6") smallmouth bass than salmonids. Crayfish, shad, and lamprey ammocetes are the most desired prey based on my personal observations throughout the years. The lamprey are like candy to the bass and even though the ammocetes are a small percent of the total diet, smallmouth bass will swim from several feet away to eat this 4-inch wiggling, worm-like fish. Salmonids are also highly desirable, but made up well below 1 percent of the total diet samples in the study. Lure and bait choices by the more successful anglers tend to support these conclusions.

Smallmouth bass inhabit most of the mainstem Umpqua (including the upper tidal area) and South Umpqua, Cow Creek, and lower reaches of Calapooya Creek, Elk Creek, and Lookingglass Creek. Smallmouth bass have been occasionally observed in the lower North Umpqua, but currently are not present in any significant numbers above the Winchester dam. A few reports of bass in Smith River have been received, but an extensive snorkel and electrofishing survey in did not document smallmouth bass anywhere in this subbasin. Overall distribution of smallmouth bass has remained relatively the same (205 to 235 miles) since the late 1980's. Population numbers also appear to be stable at this time.

The highest risk to a salmonid population from bass predation would most likely be to a species that co-exists in rearing habitats or has peak outmigration of smolts during higher water temperatures (late spring through early fall) when smallmouth bass are actively feeding. These bass do not become active and start growing until the temperatures reach over 60 degrees F. and prefer water temperatures in the 70-80 degree F range. South Umpqua spring and fall chinook juveniles rear and migrate in the mainstem from March through July. The chinook status indexes, based on adult spawner counts suggest, however, that both populations have significantly increased since the 1980's (Figure 2). Other salmonid populations in the North Umpqua, mainstem Umpqua, and Smith River do not utilize the same habitat areas or migrate during the warmer water temperature period. After reviewing available trend counts from native winter steelhead, summer steelhead, spring chinook, fall chinook, and coho, there is not a significant decrease in any of these populations that can be directly attributed to smallmouth presence and/or predation (Figures 3 and 4). The biggest potential threat, though, may still to North Umpqua juvenile chinook and steelhead if smallmouth bass become established in the future in the upper reaches of the river.

Many native non-salmonid species are present year-round in the same mainstem reaches of the South Umpqua and mainstem Umpqua where the smallmouth bass are very abundant. Population estimates and trends are not available for many of these species. However, Winchester dam counts for suckers, pikeminnows, and lamprey migrating upstream from the mainstem Umpqua and lower 7 miles of the North Umpqua suggest all of these populations have decreased since the 1960's (Figure 5). There were less Pacific Lamprey adults migrating across Winchester dam than federally listed Umpqua cutthroat trout in the past 3 years.

The Umpqua pikeminnow is a voracious predator on other fish species, including salmonids smolts, and is more active during cooler temperatures than the introduced smallmouth bass. Reduction in overall numbers of pikeminnow could decrease the predation of salmonids smolts in earlier migration periods before the smallmouth bass become active. The net gain or loss of salmonid survival from other native fish species with smallmouth bass now present in the basin is unknown and inconclusive.

Angler creel surveys conducted in the Umpqua basin show that the smallmouth bass fishery has a high catch rate and many, many anglers. Most anglers release a high percentage (50-80%) of their

catch due to the small average size of the fish. Less than 15% of the catchable-sized bass are over 10" in length. Also, it is common to catch over 5 bass an hour during the peak summer months. A recent regulation change that allows a higher harvest limit for bass (10 fish/day) in the Umpqua did not significantly increase the overall harvest of bass.

In summary, the Umpqua basin fisheries and native fish populations have changed due to the illegal introduction of exotic fish. Smallmouth bass are a relatively new predator to salmonid and non-salmonid species. The specific impacts attributed from the introduction of bass will most likely never be determined due to the complex and variable factors that determine overall native production in a basin the size of the Umpqua. The fisheries management plans and goals for the Umpqua must, however, now always include smallmouth bass. This species is now well established as one of the many fish populations in the Umpqua. It provides an excellent sport fishery when other salmon and trout fisheries are closed or never were even present. Bass should not be ignored, but there is not enough scientific evidence in the Umpqua to suggest blame be laid only on the smallmouth for overall concerns for the native species status. Fishing regulations may have very little effect on the overall bass population size and distribution; and most likely will not significantly reduce directed predation rates on salmonid species in the basin. Bigger concerns may be related to the non-salmonid species co-occurring with the bass in the mainstem rivers. The basin fisheries and all native populations will continue to be affected by the smallmouth bass in the future. I have no doubt the magnitude of the blame for many concerns will vary as much as individual people's accent on the word "NOT" in the English language.

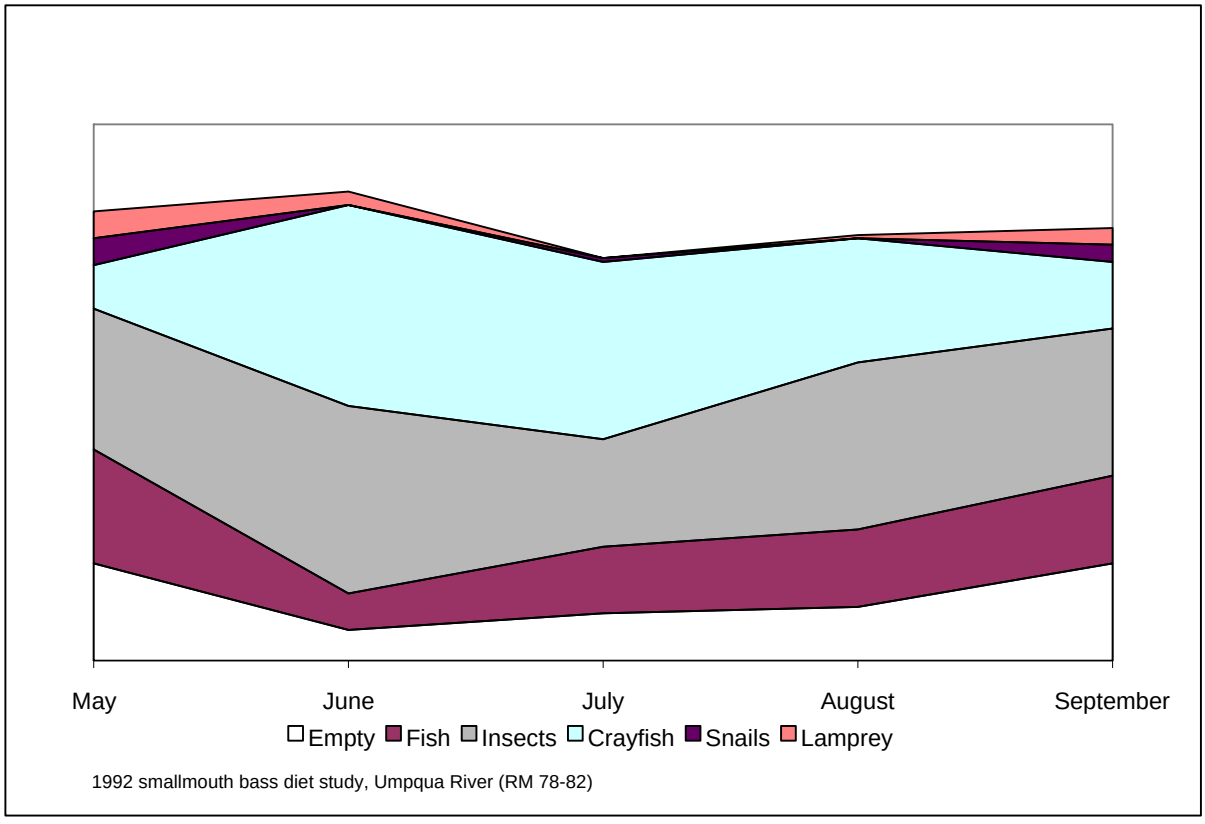

Figure 1. Presence of prey groups in stomachs of smallmouth bass (N=371) collected in the mainstem Umpqua River, May-September, 1992.

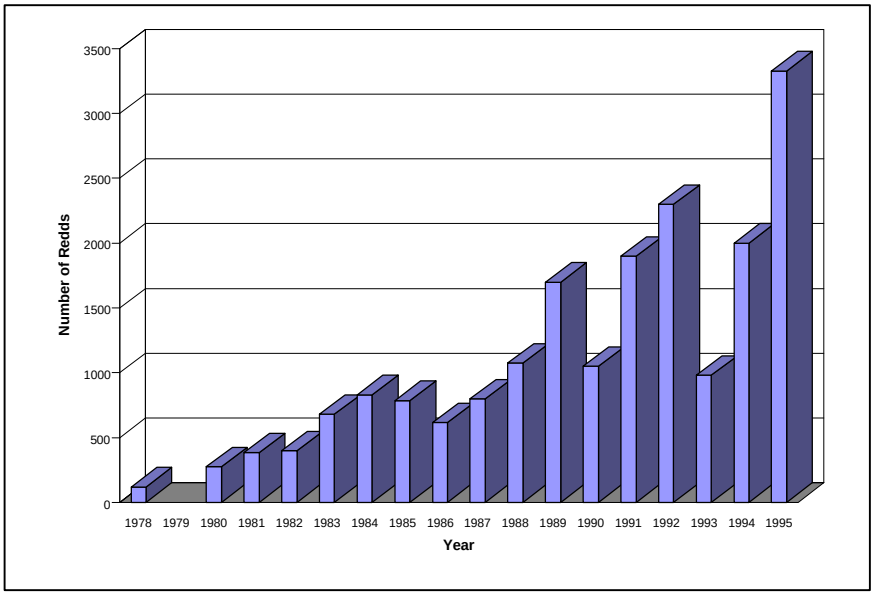

Figure 2. Yearly redd counts of fall chinook from 1978-1995 in the South Umpqua River Basin.

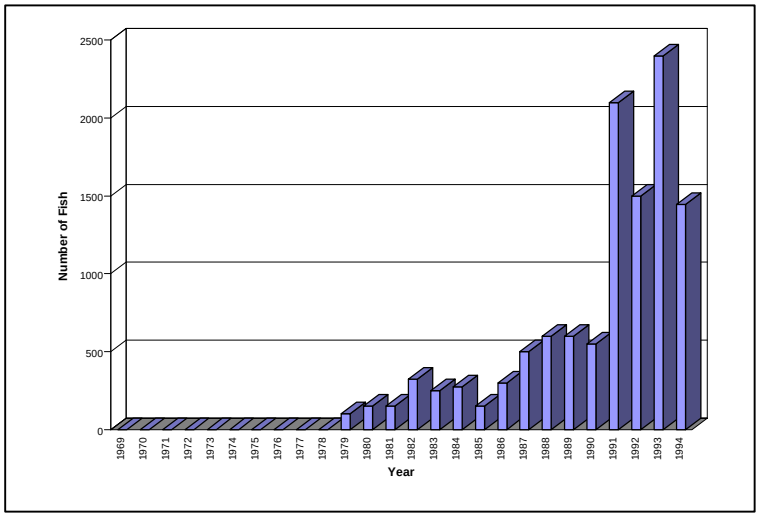

Figure 3. Yearly harvest estimates of fall chinook from 1969 to 1994 in the mainstem Umpqua River.

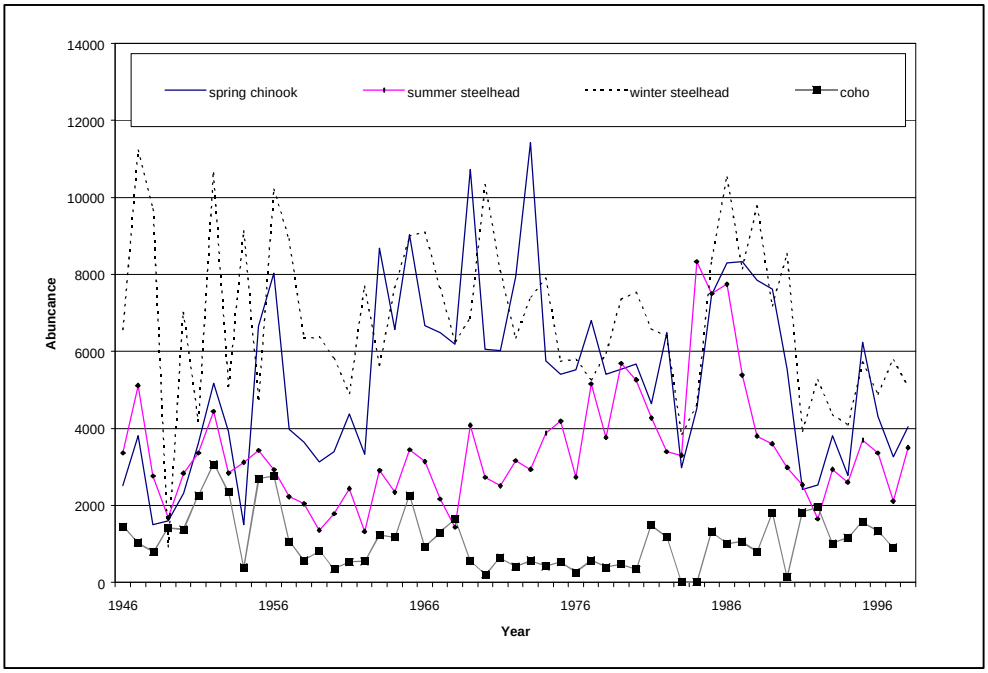

Figure 4. Yearly counts of wild spring chinook, summer steelhead, winter steelhead, and coho passing Winchester Dam on the North Umpqua River from 1946 to 1998.

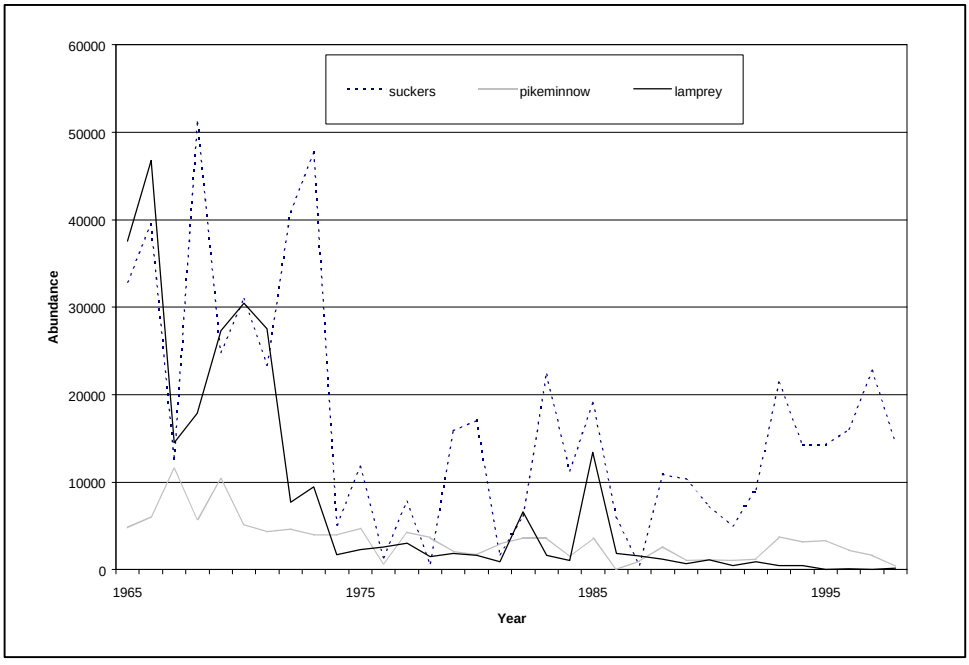

Figure 5. Yearly counts of suckers, pikeminnows, and lamprey passing Winchester Dam on the North Umpqua River from 1965 to 1998.